

Claims List:

1-55. (cancelled)

56. (currently amended) The user interface according to Claim ~~55~~ 62 wherein said means for enabling a user to select a plurality of sites and to connect said plurality of sites connects said sites in a network using network interfaces ~~interfacing means at said sites~~.

57. (currently amended) The user interface according to Claim ~~55~~ 62 wherein said user interface is implemented on the computer using object oriented components.

58. (previously presented) The user interface according to Claim 57 wherein said means for enabling a user to select a plurality of sites represents a first means, said means for enabling production of information represents a second means, and said object oriented components comprise:

an abstract menu object comprising:

a command name object;

means for selecting the abstract menu object; and

a submenu command object derived from the abstract menu object, and

comprising means for executing the submenu command object;

a menu command object derived from the abstract menu object

comprising:

a plurality of the submenu command objects;

means for selecting one of the submenu command objects; and

a menu bar object derived from the abstract menu object comprising a plurality of the menu command objects, and a select menu for selecting one of the menu command objects; and

a first action command object derived from the submenu command object comprising:

means for selecting said action command object; and

means for carrying out said first action command object for operating said second means.

59. (previously presented) The user interface according to Claim 57 wherein said means for enabling a user to select a plurality of sites represents a first means, said means for enabling production of information represents a second means, and said object oriented components comprise:

an abstract menu object comprising:

a command name object;

means for selecting the abstract menu object; and

a submenu command object derived from the abstract menu object, and

comprising means for executing the submenu command object;

a menu command object derived from the abstract menu object

comprising:

a plurality of the submenu command objects;

means for selecting one of the submenu command objects; and

a menu bar object derived from the abstract menu object comprising a plurality of the menu command objects, and a select menu for selecting one of the menu command objects; and

a first action command object derived from the submenu command object comprising:

means for selecting said action command object; and

means for carrying out said first action command object for operating said first means.

60. (currently amended) The user interface according to Claim ~~55~~ 62 wherein said means for enabling a user to select and connect said sites establishes said connection between said multiple sites for data communication through a shared file structure having one or more components capable of being shared by said sites.

61. (currently amended) The user interface according to Claim 62 ~~55~~ further comprises:

means for displaying the topology of the connected sites to the user as linked nodes.

62. (currently amended) A The user interface according to Claim 55 further for controlling color reproduction at multiple sites wherein each of said sites has at least one color input or output device and said user interface is operable at a computer comprising:

means for enabling a user to select a plurality of sites and to connect said plurality of sites;

means for enabling the production of information for transforming input color image data into output color image data for the color input or output devices at said plurality of sites such that colors produced by the color devices appear substantially the same within colors attainable by each of the devices, wherein said information for transforming comprises information relating the color gamuts of said different color devices to each other; and

means for defining user preferences for color reproduction by at least one of the color devices.

63. (currently amended) The user interface according to Claim 62 further comprising means for enabling the user to select preferences of neutral color definition or at least one aspect of utilization of a neutral colorant.

64. (currently amended) A The user interface according to Claim 55 further for controlling color reproduction at multiple sites wherein each of said sites has at least one color input or output device and said user interface is operable at a computer comprising:

means for enabling a user to select a plurality of sites and to connect said plurality of sites;

means for enabling the production of information for transforming input color image data into output color image data for the color input or output devices at said plurality of sites such that colors produced by the color devices appear substantially the same within colors attainable by each of the devices, wherein said information for transforming comprises information relating the color gamuts of said different color devices to each other; and

means for displaying characteristics of said defined color transformation at one or more sites.

65. (currently amended) The user interface according to Claim 64 wherein said characteristics ~~comprise at least the gamut~~ of the color transformation of one or more color devices comprises at least gamut scaling.

66. (currently amended) The user interface according to Claim 64 ~~55~~ further comprising:

means for comparing characteristics of said ~~defined~~ color transformation at one or more sites for two or more of said color devices.

67. (cancelled)

68. (currently amended) The user interface according to Claim ~~55~~ 62 further comprising:

means for annotating images produced by at least one of said color devices.

69. (cancelled)

70. (previously presented) The user interface according to Claim 56 wherein said network represents one of a Wide Area Network (WAN), Internet, telecommunications network or LAN.

71. (currently amended) The user interface according to Claim ~~55~~ 62 wherein at least two of said sites are remote from each other.

72-77. (cancelled)

78. (previously presented) A method for associating different image rendering devices with each other to define the color transformation of digital images between two or more rendering devices, comprising the steps of:

producing a model relating different ones of said rendering devices to each other in which rendering devices having similar color rendering characteristics are grouped in a class;

generating an object defining each said class; and

sharing color transformation information between one or more rendering devices of each said class by inheritance.

79. (cancelled)

80. (currently amended) An apparatus for controlling color reproduction with improved color matching at by multiple rendering devices comprising:

a computer system representing a server having memory and a network interface, said computer system being capable of connectable to a plurality of sites along a network for communication communicating with a plurality of said sites through said network interface; and

said memory stores which produce information for transforming input color image data into output color image data for rendering devices at said sites such that colors produced by the rendering devices appear substantially the same within output colors attainable by the rendering devices, wherein said information for transforming comprises at least information relating to the color gamuts of said rendering devices, said information for transforming is modifiable responsive to user preferences for color reproduction to one another, and said information for transforming is accessible from said computer system by said sites or distributed by said computer system to said sites with or without the color image data.

81. (previously presented) The apparatus according to Claim 80 wherein said information comprises at least the relationship of the gamut of input image data to the gamuts of one or more rendering devices.

82. (previously presented) The apparatus according to Claim 80 wherein said computer system further comprises a user interface for enabling a user to select one or more sites for connection to said computer system.

83. (previously presented) The apparatus according to Claim 80 wherein said computer system is located at one of said sites.

84. (currently amended) An The apparatus according to Claim 80 for controlling color reproduction by multiple rendering devices comprising:

a computer system connectable to a plurality of sites along a network for communication with said sites which produce information for transforming input color image data into output color image data for rendering devices at said sites such that colors produced by the rendering devices appear substantially the same within output colors attainable by the rendering devices, wherein said information for transforming comprises at least information relating the color gamuts of said rendering devices to one another, wherein said information for transforming comprises gamut operations that are invertible or reciprocal.

85. (currently amended) A The user interface according to Claim 55 for controlling color reproduction at multiple sites wherein each of said sites has at least one color input or output device and said user interface is operable at a computer comprising:

means for enabling a user to select a plurality of sites and to connect said plurality of sites; and

means for enabling the production of information for transforming input color image data into output color image data for the color input or output devices at said plurality of sites such that colors produced by the color devices appear substantially the same within colors attainable by each of the devices, wherein said information for transforming comprises information relating the color gamuts of said different color devices to each other, wherein said information for transforming comprises one or more gamut operations that are invertible or reciprocal.

86. (currently amended) The user interface according to Claim 55 62 further comprising means enabling a user to initiate verification that said transformation information properly transforms said input color image data to said output color image data at one or more of said sites.

87. (currently amended) A The user interface according to Claim 55 for controlling color reproduction at multiple sites wherein each of said sites has at least one color input or output device and said user interface is operable at a computer comprising:
means for enabling a user to select a plurality of sites and to connect said plurality of sites; and

means for enabling the production of information for transforming input color image data into output color image data for the color input or output devices at said plurality of sites such that colors produced by the color devices appear substantially the same within colors attainable by each of the devices, wherein said information for transforming comprises information relating the color gamuts of said different color devices to each other, wherein said means for enabling a user to select a plurality of sites and to connect said plurality of sites further comprises means for enabling a user to graphically configure the topology of the sites to select said sites for connection.

88. (currently amended) A method for controlling color reproduction of digital color image data captured by a digital color input device comprising the steps of:

providing information for interpreting said image data with respect to the relationships between color ~~gamuts~~ gamut of said input device and the color coordinate system of said image data; and

storing said information to enable reproduction on a color rendering device which improves the match between the color ~~gamuts~~ gamut of said input device and color ~~gamuts~~ gamut of said color rendering device in accordance with one or more gamut operations in which at least one of said gamut operations is capable of being reciprocal.

89-92. (cancelled)

93. (currently amended) A method for providing control to a user for processing color images comprising the steps of:

providing an interface operable at a computer through which said the user is able to select a plurality of sites having one or more color input or output devices;

communicating between said sites through a network interfaces at said sites
protocol; and

providing information for transforming input color image data into output color
image data for ~~each of~~ the color input or output devices at ~~each of~~ said plurality of sites
such that colors produced by the color devices appear substantially the same within
colors attainable by each of the devices, wherein said information for transforming
comprises information relating the color gamuts of different ones of said color devices to
each other and user preferences for color reproduction for at least one of the color
devices.

94. (currently amended) The method according to Claim 93 95 wherein said
information for transforming comprises at least information relating the color gamuts of
said color devices to each other.

95. (currently amended) A The method according to Claim 93 for providing
control to a user for processing color images comprising the steps of:

providing an interface through which said user is able to select a plurality of sites
having one or more color input or output devices;

communicating between said sites through a network protocol; and

providing information for transforming input color image data into output color
image data for each of the color input or output devices at each of said plurality of sites
such that colors produced by the color devices appear substantially the same within
colors attainable by each of the devices, wherein said information for transforming
comprises one or more gamut operations that are ~~invertible or~~ reciprocal.

96. (currently amended) The method according to Claim 93 95 wherein said
network protocol is TCP/IP.

97. (currently amended) The method according to Claim 93 95 wherein the
communication between said sites employs one of a wide area network, Internet,
telecommunication network, or LAN.

98. (currently amended) A user interface for controlling color reproduction at one or more sites having color reproduction devices ~~in which said user interface is adapted for communication between a network of said sites, said user interface~~ comprising:

a ~~graphical~~ display and pointing device enabling a user to select on said display at least one site different ~~site on said display than~~ from the site where said user interface is operated, wherein said sites are capable of being remote from each other;

a computer system coupled to said display and said pointing device; and

a network interface through which said computer system communicates with said
at least one different site and to communicate information with said different site that
enabling enables the at least one of proofing or simulation of color reproduction by at
least one color reproduction device of another color reproduction device at said different
site, in which

the color reproduction devices are capable of being of different types or
models, or have different colorants, and

said display presents to said user one or more characteristics of said
proofing or simulation of color reproduction, said characteristics comprising at
least information related to the sites and said information enabling said proofing
or simulation.

99. (currently amended) A user interface for controlling color reproduction of an image at multiple sites comprising:

a display capable of presenting graphical elements to a user; and

a pointing device enabling said user to choose ~~for choosing~~ among graphical elements presented on said display for selecting at least one of different gamut operations upon said image, wherein at least one of said gamut operations is reciprocal and at least
~~color data of the image is compressible or expandable according to said selected gamut operation and~~ one of said color data or information defining the gamut operation is capable of being communicated between at least two of the sites.

100. (new) The apparatus according to Claim 80 wherein colors produced by the rendering devices at said sites are substantially the same within output colors attainable

by the rendering devices and said rendering devices are capable of being of different types or models, or have different colorants.

101. (new) The apparatus according to Claim 80 wherein said user preferences are capable of being expressed at least in part by annotations to at least one of the input or output image data.

102. (new) The apparatus according to Claim 80 wherein said information for transforming enables at least one of proofing or simulation of color reproduction by at least one of said color rendering devices of another color rendering device.

103. (new) The apparatus according to Claim 80 wherein at least one of said sites is capable of being remote from the other said sites, and said communication is capable of being at least partly wireless.

104. (new) The apparatus according to Claim 80 wherein said user preferences comprise one or more of: at least one aspect of the utilization of colorants in excess of three; preferences for gamut scaling; or results of profile editing.

105. (new) The apparatus according to Claim 82 wherein said user interface enables a user to initiate verification that said information for transforming properly transforms said color image data at one or more of said sites.

106. (new) The method according to Claim 93 wherein the communication between said sites employs one or more of a wide area network, Internet, telecommunications network, or LAN.

107. (new) The method according to Claim 93 wherein said communication is capable of being at least partly wireless.

108. (new) The method according to Claim 93 wherein said information for transforming comprises at least a gamut operator that is reciprocal.

109. (new) The method according to Claim 93 wherein said information for transforming comprises gamut operations that are invertible.

110. (new) The method according to Claim 93 wherein said user preferences for color reproduction include at least one aspect of the utilization of one or more neutral colorants.

111. (new) The method according to Claim 93 wherein said user preferences for color reproduction include selection of gamut scaling operations.

112. (new) The method according to Claim 93 further comprising the step of annotating images produced by at least one of said color devices.

113. (new) The method according to Claim 93 wherein at least two of said sites capable of being remote from each other.

114. (new) The method according to Claim 93 further comprising the step of verifying whether said information for transforming properly transforms said color image data at one or more of said sites.

115. (new) A method for providing control to a user for processing color images comprising the steps of:

providing a user interface operable at a computer having a display through which said user is able to select a plurality of sites having one or more color input or output devices;

communicating between said sites through network interfaces at said sites;

providing information for transforming input color image data into output color image data for the color input or output devices at said plurality of sites to improve color matching of colors produced by the color devices, wherein said information for transforming comprises information relating color gamuts of said different color devices to each other; and

outputting to said display one or more characteristics of said information for transforming at one or more sites.

116. (new) The method according to Claim 115 wherein said outputting step further comprises the step of outputting to said display a comparison of said characteristics for two or more of said color devices at one or more sites.

117. (new) The method according to Claim 115 wherein said characteristics comprise components of said information, and said outputting step further comprises identifying on said display said components and their relationships to one another.

118. (new) The method according to Claim 117 wherein one or more of said components represent color profiles.

119. (new) The method according to Claim 117 wherein said components comprise at least one of default settings or user preferences for at least one aspect of the utilization of one or more neutral colorants.

120. (new) The method according to Claim 115 wherein said communication between said sites is capable of being at least partly wireless and uses one or more of a wide area network, Internet, telecommunications network, or LAN.

121. (new) A method for controlling color reproduction between a color image input device and one or more color rendering devices comprising the steps of:

converting said image into digital data represented in coordinates of a color space in which said converting provides scaling of the gamut of colors of said image according to one or more gamut operations, wherein at least one of said operations compresses said colors invertibly;

storing information related to said scaling and said digital image data in memory such that said information and said digital image data are separable;

saving at least one of default settings or user preferences for color reproduction with said stored information; and

making said information and said settings or said user preferences available for the production of one or more color transformations useable by said one or more color rendering devices, wherein said color transformations are capable of expanding the gamut of colors of said digital image data reciprocally for improved color rendering.

122. (new) The method according to Claim 121 wherein said color image input device is a digital camera and said color rendering device is an ink jet printer having four or more colorants.

123. (new) The method according to Claim 121 wherein said color space is RGB.

124. (new) The user interface according to Claim 70 wherein one or more sites communicate via said network through at least partly wireless communication.

125. (new) The user interface according to Claim 124 wherein said wireless communication is satellite enabled.

126. (new) The apparatus according to Claim 84 wherein one or more of said gamut operations are invertible.

127. (new) The method according to Claim 95 wherein one or more of said gamut operations are invertible.

128. (new) The user interface according to Claim 98 wherein said characteristics further comprise user preferences for color reproduction, said user interface enabling said user to express said user preferences by annotations to said color image data which are separable from said image data.